

LISTING OF THE CLAIMS

CLAIMS

We claim:

1. (Currently amended) A computerized method comprising: executing a nested transaction for computing data in an execution environment supporting a flat transaction only, and wherein a nested transaction encapsulates between a first StartTransaction operation and a corresponding first EndTransaction operation on a first nesting level a hierarchy of one or more further StartTransaction operations and corresponding further EndTransaction operations on further nesting levels, wherein a StartTransaction operation starts a transaction; and wherein an EndTransaction operation ends a transaction; wherein a facade library provides access from an object oriented environment to a relational database system, having a transaction object comprises a depth counter, a CommitTransaction operation, and a RollbackTransaction operation as object methods, and said method further comprising performing a StartTransaction operation by,

checking whether said StartTransaction operation is on the first nesting level of said nested transaction, and

issuing a corresponding StartTransaction operation within said execution environment only if when said StartTransaction operation is on the first nesting level of said nested transaction.

2. (Currently amended) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 1, said method performing an EndTransaction operation by:

checking, in case said EndTransaction operation is a CommitTransaction operation successfully terminating a transaction, whether said EndTransaction operation is on said first nesting level of said nested transaction, and

issuing a corresponding CommitTransaction operation within said execution environment only if when said EndTransaction operation is on said first nesting level of said nested transaction.

3. (Previously presented) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 2, said method performing an EndTransaction operation in case said EndTransaction operation is a RollbackTransaction operation aborting a transaction as unsuccessful, by issuing a corresponding RollbackTransaction operation within said execution environment independent from the nesting level of said RollbackTransaction operation.

4. (Previously presented) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 3, said method performing, once a RollbackTransaction operation has been executed within said nested transaction, any further StartTransaction operation or any further EndTransaction operation within said nested transaction independent from its nesting level by rejecting it as being in error without issuing a corresponding StartTransaction operation or a corresponding EndTransaction operation to the execution environment.

5. (Currently amended) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only, and wherein a nested transaction encapsulates between a first StartTransaction operation and a corresponding first EndTransaction operation on a first nesting level a hierarchy of one or more further StartTransaction operations and corresponding further EndTransaction operations on further nesting levels, wherein a StartTransaction operation starts a transaction; and wherein an EndTransaction operation ends a transaction; and said method further comprising performing a StartTransaction operation by,

checking whether said StartTransaction operation is on the first testing level of said nested transaction, and

issuing a corresponding StartTransaction operation within said execution environment only if when said StartTransaction operation is on the first testing level of said nested transaction.
said method performing an EndTransaction
operation by:

checking, in case said EndTransaction operation is a CommitTransaction operation successfully terminating a transaction, whether said EndTransaction operation is on said first nesting level of said nested transaction, and

issuing a corresponding CommitTransaction operation within said execution environment only if when said EndTransaction operation is on said first nesting level of said nested transaction;

said method performing an EndTransaction operation in case said EndTransaction operation is a RollbackTransaction operation aborting a transaction as unsuccessful, by issuing a corresponding RollbackTransaction operation within said execution environment independent from the nesting level of said RollbackTransaction operation;

said method performing, once a RollbackTransaction operation has been executed within said nested transaction, any further StartTransaction operation or any further EndTransaction operation within said nested transaction independent from its nesting level by rejecting it as being in error without issuing a corresponding StartTransaction operation or a corresponding EndTransaction operation to the execution environment, and

wherein said method:

checks the nesting level of any of said StartTransaction or EndTransaction operations by a depth counter,

increments said depth counter in the case of processing a StartTransaction operation, and

decrements said depth counter in the case of processing an EndTransaction operation

which is a CommitTransaction operation, and

sets said depth counter to zero or an invalid value in the case of processing an EndTransaction operation which is a RollbackTransaction operation.

6. (Previously presented) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 5, wherein:

said method is performed by a facade library separate from said execution environment, and said execution environment is a database system, and

said facade library provides access from an object oriented environment to said relational database system.

7. (Previously presented) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 6, wherein said facade library comprises a STORE object class providing access to said database system and said STORE object class providing said StartTransaction operation as one of its methods.

8. (Previously presented) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 7, said method performing said StartTransaction operation by creating a transaction object for further control of said nested transaction in case said StartTransaction operation is on the first nesting level

9. (Previously presented) A computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only according to claim 8, wherein said transaction object comprises said depth counter, said CommitTransaction operation, and said RollbackTransaction operation as object methods.

10. (Currently amended) A computer implemented system for executing a nested transaction for computing data in an execution environment supporting a flat transaction only, the nested transaction being tangibly embodied in a computer to perform execution of transactions, and wherein a nested transaction encapsulates between a first StartTransaction operation and a corresponding first EndTransaction operation on a first nesting level a hierarchy of one or more further StartTransaction operations and corresponding further EndTransaction operations ends a transaction; said system performing a StartTransaction operation, the system comprising.

means for checking whether said StartTransaction operation is on the first nesting level of said nested transaction, and

means for issuing a corresponding StartTransaction operation within said execution environment only if when said StartTransaction operation is on the first testing level of said nested transaction.

11. (Currently amended) A data processing program for execution in a data processing system comprising software code portions for performing a computerized method for executing a nested transaction for computing data in an execution environment supporting a flat transaction only, and wherein a nested transaction encapsulates between a first StartTransaction operation and a corresponding first EndTransaction operation on a first nesting level a hierarchy of one or more further StartTransaction operations and corresponding further EndTransaction operations on further nesting levels, wherein a StartTransaction operation starts a transaction; and wherein an EndTransaction operation ends a transaction; wherein a facade library provides access from an object oriented environment to a relational database system, having a transaction object comprises a depth counter, a CommitTransaction operation, and a RollbackTransaction operation as object methods, and said method further comprising performing a StartTransaction operation by,

checking whether said StartTransaction operation is on the first nesting level of said nested transaction, and

issuing a corresponding StartTransaction operation within said execution environment only if when said StartTransaction operation is on the first nesting level of said nested transaction.

12. (Currently amended) A computer program product stored on a computer usable medium, comprising computer readable program means for causing a computer to perform a method executing a nested transaction in an execution environment supporting a flat transaction only, and wherein a nested transaction encapsulates between a first StartTransaction operation and a corresponding first EndTransaction operation on a first nesting level a hierarchy of one or more further StartTransaction operations and corresponding further EndTransaction operations on further nesting levels, wherein a StartTransaction operation starts a transaction; and wherein an EndTransaction operation ends a transaction; wherein a facade library provides access from an

object oriented environment to a relational database system, having a transaction object comprises a depth counter, a CommitTransaction operation, and a RollbackTransaction operation as object methods, and said method further comprising performing a StartTransaction operation by,

checking whether said StartTransaction operation is on the first nesting level of said nested transaction,

and issuing a corresponding StartTransaction operation within said execution environment only if when said StartTransaction operation is on the first testing level of said nested transaction.

13. (Previously presented) An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing execution of a nested transaction for computing data in an execution environment supporting a flat transaction only, the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect the steps of claim 1.

14. (previously presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for, said method steps comprising the steps of claim 1.

15. (Previously presented) An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing execution of a nested transaction for computing data in an execution environment supporting a flat transaction only, the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect the steps of claim 5.

16. (previously presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for, said method steps comprising the steps of claim 5.

17. (Previously presented) A computer program product comprising a computer usable medium having computer readable program code means embodied therein for causing a executing a nested

transaction for computing data in an execution environment supporting a flat transaction only, the computer readable program code means in said computer program product comprising computer readable program code means for causing a computer to effect the functions of claim 10.

18. (Currently amended) A computerized method for executing a nested transaction in an execution environment supporting a flat transaction only according to claim 1, said method performing an EndTransaction operation for computing data by:

checking, in case said EndTransaction operation is a CommitTransaction operation successfully terminating a transaction, whether said EndTransaction operation is on said first nesting level of said nested transaction, and

issuing a corresponding CommitTransaction operation within said execution environment only if when said EndTransaction operation is on said first nesting level of said nested transaction;

said method performing an EndTransaction operation in case said EndTransaction operation is a RollbackTransaction operation aborting a transaction as unsuccessful, by issuing a corresponding RollbackTransaction operation within said execution environment independent from the nesting level of said RollbackTransaction operation; and

said method performing, once a RollbackTransaction operation has been executed within said nested transaction, any further StartTransaction operation or any further EndTransaction operation within said nested transaction independent from its nesting level by rejecting it as being in error without issuing a corresponding StartTransaction operation or a corresponding EndTransaction operation to the execution environment.

19. (Previously presented) An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing execution of a nested transaction for computing data in an execution environment supporting a flat transaction only, the computer readable program code means in said article of manufacture comprising computer readable program code means for causing a computer to effect the steps of claim 18.

20. (Previously presented) A computerized method for executing a nested transaction in an execution environment supporting a flat transaction only according to claim 5, wherein:

said method is performed by a facade library separate from said execution environment, and said execution environment is a database system, and

said facade library provides access from an object oriented environment to said relational database system,

said facade library comprises a STORE object class providing access to said database system and said STORE object class providing said StartTransaction operation as one of its methods;

said method performing said StartTransaction operation by creating a transaction object for further control of said nested transaction in case said StartTransaction operation is on the first nesting level; and

said transaction object comprises said depth counter, said CommitTransaction operation, and said RollbackTransaction operation as object methods.